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AUTHOR Pedrini, Bonnie C.; Pedrini, D. T.
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ABSTRACT

This paper considers many of the studies that have been conducted regarding the prediction of college success. The table of contents includes: (1) "Prediction of Academic Success," which discusses the results of several standardized tests and their ability to predict success in college; (2) "Prediction of Academic Failure," which looks at study skills and their relation to academic failure; (3) "Variables Related to College Attrition," which discusses sex, minority students, disadvantaged, and academic ability; and (4) "Special Programs," which reports the results of some of the studies evaluating college reading programs. Included are 72 footnote references, a topical bibliography, and a general bibliography of books, government documents, journals and periodicals, and reports.
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READING, ACHIEVEMENT, APTITUDE

AND THE PREDICTIONS OF COLLEGE

SUCCESS, FAILURE, ATTRITION

Bonnie C. Pedrini and D. T. Pedrini

University of Nebraska at Omaha, Omaha, Nebraska 68101

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Abstract

The predictions of college success, failure, or attrition are difficult and crucial. It is of great importance to administrators, of greater importance to teachers, and of greatest importance to students. The latter can profit most or least, and not just in terms of the education or training but in terms of the credential. (For an interesting discussion, see McClelland, American Psychologist, Jan., 1973.)

Concerning these predictions, the abilities of persons may be critical (e.g., achievements; aptitudes; intelligences; temperaments, adjustments, maturities; interests, preferences, values; study habits, motivations; creativities). And one of the most important abilities has been reading, a basic skill, and of prime concern to educators. Reading has often been studied in academe. However, other variables have to be considered, also, such as sex, race, and poverty.

In this paper, many studies are considered, often with contradictory subsets. Included are 72 footnote references, a topical bibliography (subsumed within the footnotes), and a general bibliography at the end of the paper. A Table of Contents follows.

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READING, ACHIEVEMENT, APTITUDE
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Prediction of Academic Success

Educational administrators have always found it beneficial in the decision making process to be able to predict behaviors. As early as the 1920's it was recognized that there were many variables which could be used to predict a student's success in college--intelligence,¹ past performance in high school,² ability to read,³ scores on achievement tests in English,⁴ mathematics, physics, chemistry, etc.,⁵

¹A. W. Kornhauser, "Test and High School Records as Indicators of Success in an Undergraduate School of Business," Journal of Educational Research, 16:342-356, Dec., 1927; see also M. J. Nelson and E. C. Denny, "The Terman and Thurstone Group Tests as Criteria for Predicting College Success," School and Society, 26:5-1-502, Oct., 1927; see also G. W. Derflinger, "The Prediction of College Success--A Summary of Recent Findings," Journal of the American Association of College Registrars, 19:63-78, 1943, reviewed by C. S. Speers, Psychological Abstracts, 18:65, February, 1944.

²J. M. Stalnaker, "American Council Psychological Examination for 1926 at Purdue University," School and Society, 27:86-88, Jan., 1928; see also C. Lunneborg and P. Lunneborg, "Predicting Success in Community College Vocational Courses," Journal of Counseling Psychology, 16:353-357, July, 1969.

³Kornhauser, loc. cit.; see also Stalnaker, loc. cit.

⁴Kornhauser, ibid.

⁵Stalnaker, loc. cit.

ability to study,⁶ mental health,⁷ and motivation.⁸

It soon became apparent that many factors had variable success in being able to predict overall scholarship and scholarship in a particular field. Using Cooperative Test Service Scores, CEEB Verbal scores, CEEB mean scores, and the mean of secondary school (grade 12) final grades, Landry found considerable variation existed in the predictive ability of the various measures for the different subject matter fields and for the different colleges studied.⁹ Nelson concluded that when all students were considered, the Denny Reading Test seemed superior to English tests and to high school content exams for the prediction of scholarship,¹⁰ while Schmitz found that the criteria in a battery of tests were approximately of equal value in predicting college success.¹¹ Preas found that high school records were

⁶W. F. Book, "How Well Can College Students Read?" School and Society, 26:242-248, Aug., 1927; see also Stalnaker, *ibid.*; see also O. Desiderato and P. Koskinen, "Anxiety, Study Habits, and Academic Achievement," Journal of Counseling Psychology, 16:162-165, March, 1969; see also J. Marshall, "Non-cognitive Variables as a Predictor of Academic Achievement among Freshmen, Sophomores, and Juniors at Abilene Christian College," Dissertation Abstracts, 29:3833A, May, 1969.

⁷Stalnaker, *loc. cit.*

⁸*Ibid.*; see also M. A. Robinson, "A Note on the Value of College Remedial Reading Courses," Journal of Educational Psychology, 41: 83-96, Feb., 1950.

⁹H. A. Landry, "The Relative Predictive Value of Certain College Entrance Criteria," Journal of Experimental Education, 5:256-260, March, 1937.

¹⁰M. J. Nelson, "Some Data from Freshmen Tests," School and Society, 31:772-774, June, 1930.

¹¹S. B. Schmitz, "Predicting Success in College: A Study of Various Criteria," Journal of Educational Psychology, 28:465-473, Sept., 1937.

generally the best predictors of college GPA, English GPA, and mathematics GPA, but SAT scores were specifically the best predictors for college GPA.¹² Astin found low level correlations between SAT scores and success in completing work for the baccalaureate degree.¹³ In a more recent report he discussed research findings which did not support the traditional admissions practices adhered to by colleges and universities and suggested using alternative methods, e.g., a lottery, for admissions.¹⁴ Thus, conflicting reports were and continue to be published concerning the predictive value of specific and general area achievement/aptitude tests for college success and as part of the admissions procedure.¹⁵

¹²N. B. Preas, "A Study of the Relationship Between Selected Variables and Academic Achievement in a Community College" (North Carolina University, Department of Adult Education, Ed. D. Thesis, 1969), (Washington, D. C.: ERIC Clearinghouse on Adult Education, Oct., 1970).

¹³A. W. Astin, "The Folklore of Selectivity," Saturday Review, Dec. 20, 1969 cited in E. W. Gordon, "Access to Higher Education," IRCD Bulletin, 7:7-10, Feb., 1972 (U. S., ERIC Information Retrieval Center on the Disadvantaged).

¹⁴A. W. Astin, "A Researchers Proposal for Changes in Higher Education," Educational Record (Washington, D. C.: American Council on Education, Summer, 1970).

¹⁵W. D. Templeman, "Vocabulary and Success in College," School and Society, 14:221-224, Feb., 1940; see also W. D. Templeman, "Vocabulary and Success in College," Journal of Higher Education, 13:213-215, April, 1942; see also I. H. Anderson and W. F. Dearborn, "Reading Ability as Related to College Achievement," Journal of Psychology, 11:387-396, April, 1941; see also W. J. Humber, "The Relationship Between Reading Efficiency and Academic Success in Selected University Curricula," Journal of Educational Psychology, 35:17-26, Jan., 1944; see also H. E. Peixotto, "The Relationship of College Board Examination Scores and Reading Scores for College Freshmen," Journal of Applied Psychology, 30:406-411, Aug., 1946; see also M. Anderson and E. J. Stegman, "Predictors of Freshmen Achievement at Ft. Hays Kansas State College," Educational and Psychological Measurement,

Several of the studies which report using achievement and/or aptitude tests to predict academic success have found that verbal factors are extremely important;¹⁶ these verbal factors typically involve some type of reading skills.

14:722-723, April, 1954; see also W. J. Bruce, "The Contribution of Eleven Variables to the Prognosis of Academic Success in Eight Areas at the University of Washington," Dissertation Abstracts, 13:505, no. 4, 1953; see also D. W. Kern, "The Prediction of Academic Success of Freshmen in a Community College," Dissertation Abstracts, 15:85, no. 1, 1955; see also R. McQueen, "Diagnostic Reading Scores and College Achievement," Psychological Report, 3:627-629, Dec., 1957; see also W. Floyd, "A Longitudinal Study of the Scholastic Aptitude Test as a Predictor of College Success," School Counselor, 14:130-142, Jan., 1967; see also J. W. Campbell, "Factors Related to Scholastic Achievement (Louisiana State University's 1963-1964 Freshman Class)," Dissertation Abstracts, 26:4360-4361, Feb., 1966; see also T. F. Gallant, "Academic Achievement of College Freshmen and its Relationship to Selected Aspects of the Student's Background," Dissertation Abstracts, 26:6463-6469, May, 1966; see also D. J. Ernest, "The Prediction of Academic Success of College Music Majors," Journal of Research in Music Education, 18:273-276, March, 1970; see also S. Feuers, "The Relationship Between General Reading Skills and Junior College Academic Achievement," Dissertation Abstracts, 30:3186A, Feb., 1970; see also R. Graff and J. Hansen, "Relationship of OASIS Scores to College Achievement and Adjustment," Journal of College Student Personnel, 11:129-134, March, 1970; see also H. Janzen and E. Johnston, "The Use of Reading Tests for Entrance and Placement Testing in a Community College," cited in Research in Education, 5:110, Dec., 1970.

¹⁶ R. S. Boyer, "A Study of the Academic Success of Undergraduate Students as Identified by Aptitude Test Profiles," Dissertation Abstracts, 17:89, no. 1, 1957; see also N. S. Endler and D. Steinberg, "Prediction of Academic Achievement at the University Level," Personnel and Guidance Journal, 41:694-699, April, 1963; see also W. S. Blumenfeld, "Predicting Grade Point Average with SRA Tests of Educational Ability: A Thirteen Month Follow-up Study," Educational and Psychological Measurement, 25:555-556, Feb., 1965; see also M. K. Distefano, Jr., and M. L. Rice, "Predicting Academic Performance in a Small Southern College," Educational and Psychological Measurement, 26:487-489, Feb., 1966; see also E. Jost, "High Verbal Aptitude and Grade Achievement, A Study of the Grade Achievement of Two Hundred First Semester College of San Mateo Freshmen who Ranked High in Verbal Aptitude as measured by the School and College Abilities Tests and the Cooperative English Tests" (College of San Mateo, July, 1966), (Washington, D. C.: ERIC Clearinghouse on Junior Colleges, Jan., 1968).

A number of studies considering the predictive value of reading scores, per se, have been published, but with conflicting results. For example, Gutekunst; Friedman; Knafle; and Cortis found reading scores did predict student success in college,¹⁷ while Kimball; Marks, Vairo, and Zeigler; Brown; and Preston and Tuft found just the opposite.¹⁸ Thus, the relationships between reading ability and college success is also unclear.

Prediction of Academic Failure

The prediction of academic failure is an important aspect of administration at institutions of higher education. There have been several studies which suggested that reading ability is related to poor grades, but as seen with predicting college success, variable results have been reported.

Pepper researched the relationship between study skills and academic achievement for marginal admissions students. Although the

¹⁷J. Gutekunst, "The Prediction of Art Achievement of Art Education Students by Means of Standardized Tests," Dissertation Abstracts, 20:3302-3303, Feb., 1960; see also S. Friedman, "Predicting Students' Success in a Comprehensive Junior College," Dissertation Abstracts, 26:7112, June, 1966; see also J. Knafle, "Personality Characteristics, Social Adjustment, and Reading Effectiveness in Low-Achieving, Prospective College Freshmen in a Reading Program," Journal of Educational Research, 59:149-153, Dec., 1965; see also G. Cortis, "Predicting Student Performance in College of Education," British Journal of Educational Psychology, 38:115-122, June, 1968.

¹⁸F. Kimball, "The Use of Selected Standardized Tests as Predictors of Academic Success at Oklahoma College for Women," Dissertation Abstracts, 20:4335-4336, May, 1960; see also E. Marks, J. Vairo, and M. Zeigler, "Scholastic Aptitudes, Vocational Interests, and Personality Characteristics of Journalism Students," Journal of Educational Research, 56:37-40, Sept., 1962; see also M. M. Brown, "A Study of the Relationships of Selected Tests and Grade Point Averages for a Land Grant Institution," Dissertation Abstracts, 27:664A, Sept., 1966; see also R. Preston and E. Tuft, "The Reading Habits of Superior College Students," Journal of Experimental Education, 16: 196-201, March, 1948.

marginal students did not do as well as the regularly admitted students, he found the relationship between the skills measured and academic achievement to be unclear.¹⁹ Lanigan correlated scores on three different tests with grades in six subject matter fields for 163 Boston University freshmen. She found that the Minnesota Speed of Reading Test did not differentiate well between high and low achieving students.²⁰ Breen was concerned about the relation of reading ability to college mortality of freshmen at the University of Washington. Using three reading scores and grades in twenty-six subject areas, he found that students with test scores below the means on the three reading subtests had a 50-50 chance of achieving an all-school average of 2.00; other students had about a 3-1 chance. The total mortality for the subjects was about one-third and Breen concluded that reading may have contributed considerably to this figure.²¹ Wellington found that the most academically successful men were more likely to make higher scores on the Ohio State Psychological Exam and on the vocabulary and reading comprehension sections of the Nelson Denny Reading Test than were the most academically unsuccessful men.²²

¹⁹R. Pepper, "The Study Skills and Academic Achievement of Marginal Admission Students" (paper read at the National Reading Conference, Dec., 1969, Atlanta, Georgia), (ERIC Clearinghouse of Reading, 1969).

²⁰M. A. Lanigan, "The Effectiveness of the Otis, the A.C.E., and the Minnesota Speed of Reading Test for Predicting Success in College," Journal of Educational Research, 41:289-296, Dec., 1947.

²¹L. C. Breen, "The Relation of Reading Ability to College Mortality of Certain Entering Freshmen at the University of Washington in the Year 1950-1951," Dissertation Abstracts, 14:482, March, 1954.

²²J. A. Wellington, "Factors Related to the Academic Success of Resident Freshmen Men at a Midwestern Liberal Arts College During the Academic Year 1952-53," Dissertation Abstracts, 16:69, no. 1, 1956.

Variables Related to College Attrition

Sex

Several studies have been reported which indicate sex differences in scholastic abilities,²³ "but these have generally been regarded as evident sex differences in acquired aptitudes; for example, women do better in language, men in arithmetic, etc."²⁴

Studies which investigated various criteria for predicting academic success have revealed sex differences. Boyd found that while correlation coefficients for men and women ranged from .400 to .581 and from .379 to .609, respectively, the rank order of the criteria by size of coefficient differed markedly in some instances.²⁵ Michael, et al., found that correlations between the predictors of high school grades and CEEB scores with college success were higher for women than men;²⁶ using different predictors, Irvine, and Lindsay and Althouse found r 's and multiple R 's were higher for women.²⁷ Correlation

²³L. E. Tyler, The Psychology of Human Differences (2nd ed., New York: Appleton Century Croft, 1956), cited by D. Wechsler, The Measurement and Appraisal of Adult Intelligence (4th ed., Baltimore: Williams and Wilkins, 1958).

²⁴D. Wechsler, The Measurement and Appraisal of Adult Intelligence (4th ed., Baltimore: Williams and Wilkins, 1958), p. 148.

²⁵J. D. Boyd, "The Relative Prognostic Value of Selected Criteria in Predicting Academic Success at Northwestern University," Dissertation Abstracts, 15:1780, Dec., 1955.

²⁶W. B. Michael, R. A. Jones, A. Cox, A. Gershon, M. Hoover, K. Katz, and D. Smith, "High School Record and College Board Scores as Predictors of Success in a Liberal Arts Program During the Freshman Year of College," Educational and Psychological Measurement, 22:399-400, Feb., 1962.

²⁷D. W. Irvine, "Estimated Grades and Freshmen Achievement," Vocational Guidance Quarterly, 13:193-195, March, 1965; see also C. A. Lindsay and R. Althouse, "Comparative Validities of the Strong Vocational Interest Blank, Academic Achievement Scale and the College Student Questionnaire Motivation for Grades Scale," Educational and Psychological Measurement, 29:489-493, Feb., 1969.

coefficients between SAT scores and college grades were studied over a three year period for freshmen who attended predominantly non-Negro co-ed colleges. Analyses of variance indicated that the three main effects of sex, year, and college made significant contributions to the variance, with sex contributing 50%. The correlation coefficients obtained were consistently higher among women.²⁸ Flora found that the academic success of college men could be predicted from high school averages, but in order to predict the success of college women, verbal test scores were necessary.²⁹ Using disadvantaged minority students, Cherdack found that SAT-V correlations with GPA were generally higher for minority and White females than for males.³⁰

Minority Students

Gordon traced the history of accessibility of higher education for Blacks and noted that progress had been made since the middle 60's and the development of the National Defense Education Act.³¹ A search for academic talent was forthcoming with the initiation of the National Scholarship Service and Fund for Negro Students. However, this search

²⁸J. C. Stanley, "Further Evidence via the Analyses of Variance that Women are more Predictable Academically than Men," Ontario Journal of Educational Research, 10:49-56, Jan., 1967.

²⁹L. Flora, "Predicting Academic Success at Lynchburg College from Multiple Correlation Analyses of Four Selected Predictor Variables," Dissertation Abstracts, 27:2276, 8-A, 1967.

³⁰A. M. Cherdack, "The Predictive Validity of the Scholastic Aptitude Test for Disadvantaged College Students Enrolled in a Special Education Program, Final Report" (Office of Education, Washington, D. C., Bureau of Research), (Washington, D. C.: ERIC Clearinghouse on Higher Education, Oct., 1971).

³¹E. W. Gordon, "Access to Higher Education," IRCD Bulletin, 8:7-10, Feb, 1972 (U. S. ERIC Information Retrieval Center on the Disadvantaged).

for exceptional students who were able to meet traditional admissions standards was a failure. Consequently, some schools found it necessary to modify admissions requirements for these students.³² Flaughner found that Blacks showed small but consistent tendencies to perform better, relative to White groups on three non-traditional measures: tests of inductive reasoning, spatial scanning, and associative memory. It was also indicated that those measures showed somewhat less discrepancy between the groups than did tests of the more traditional verbal and mathematics aptitudes.³³ Hall noted that Negroes showed significantly lower aptitude and achievement scores than Whites, but there were no significant differences between the two groups in terms of motivation.³⁴ In a study of test construction, Green concluded that test item selection was biased against persons belonging to certain racial and ethnic groups, i.e., those groups not similar to the majority of persons in the try out samples.³⁵ Gordon noted that while the resources allocated by colleges and universities for disadvantaged and minority students have been limited "few...have failed to revise their admission procedures to include a broader range of

³²Ibid.

³³R. L. Flaughner, "Minority Versus Majority Group Performance on an Aptitude Test Battery, Project Access Research Report No. 3" (Educational Testing Service, Princeton, N. J., Aug., 1971), (Washington, D. C.: ERIC Clearinghouse on Tests, Measurements and Evaluation, Feb, 1972).

³⁴E. R. Hall, "Motivation and Achievement in Negro and White Students Final Report" (Chicago University, Illinois, July, 1971), (Washington, D. C.: ERIC Clearinghouse on Disadvantaged, Jan., 1972).

³⁵D. R. Green, "Racial and Ethnic Bias in Test Construction. Final Report" (CTB/McGraw Hill, Monterey California, Sept., 1971), (Washington, D. C.: ERIC Clearinghouse on Tests, Measurements, and Evaluation, Feb., 1972).

students."³⁶ In a study of higher education's response to Black students, McDaniel and McKee found that White institutions had not responded in meaningful ways to these students' needs and that they were unwilling or unable to change.³⁷ Coupled with these problems is the fact that Whites in some institutions have a negative attitude toward Blacks.³⁸ In a study of low socioeconomic Blacks at the University of Michigan, feelings of antagonism and resentment toward the university developed after a period of attendance.³⁹ It should be noted that much of the research dealing with minority students pertains to disadvantaged students as well.

Disadvantaged/Financially Needy

In A study which investigated the predictive ability of the Scholastic Aptitude Test (SAT) for disadvantaged/minority students, Cherdack found that the SAT-Verbal score was a more consistent positive predictor for White than for disadvantaged minority students. He also found that the predictor variables correlated poorer for the "risk" admission status group in the Educational Opportunity Program than for other groups.⁴⁰ Ford and Turpin found that standardized tests did not

³⁶E. W. Gordon, op. cit., p. 10.

³⁷R. R. McDaniel and J. W. McKee, "An Evaluation of Higher Education's Response to Black Students" (Indiana University, Bloomington, School of Education, Sept., 1971), (Washington, D.C.: ERIC Clearinghouse on Higher Education, April, 1972).

³⁸W. E. Sedlacek and G. C. Brooks, Jr., "Facial Attitudes of White University Freshmen" (Maryland University, College Park, Cultural Study Center), (Washington, D.C.: ERIC Clearinghouse on Higher Education, July, 1972).

³⁹W. P. Fenstermacher, "A Study of the Relationship of Instrumental and Intellectual Orientations to the Education Experiences of Black Students at the University of Michigan. Final Report." (Michigan University, Ann Arbor, Institute for Social Research, April, 1971), (Washington, D.C.: ERIC Clearinghouse on Higher Education, Jan., 1972).

⁴⁰Cherdack, loc. cit.

accurately reveal the intellectual potential of culturally disadvantaged freshmen at a predominantly Negro College.⁴¹

Stanley noted that while some researchers maintain that SAT scores of disadvantaged students are not clearly related to college grades, many researchers have found the opposite to be true. Stanley's study revealed that aptitude scores and high school grades, taken together, predicted academic success equally well for disadvantaged students and other students. He also suggested that regardless of ethnic or socioeconomic background, admission to college should be based substantially on test scores and high school grades.⁴²

The accessibility of higher education is a definite concern when discussing disadvantaged students. Lane indicated that the poor and minority students are typically sparsely represented and participate "largely through special programs with group specific dispensations."⁴³ In a study of 20 universities, it was found that two-thirds of the students who were admitted but did not enroll, were unable to enroll because of financial reasons.⁴⁴ Ferrin's study identified

⁴¹N. A. Ford and W. E. Turpin, "Improving the Reading and Writing Skills of Culturally Disadvantaged Freshmen. Final Report. (Office of Education, Washington, D. C., Bureau of Research, May, 1967), (Washington, D.C.: ERIC Clearinghouse on Disadvantaged, Oct., 1968).

⁴²J. C. Stanley, "Predicting College Success of Educationally Disadvantaged Students" (Office of Education, Washington, D.C., Bureau of Research, Sept., 1970), (Washington, D.C.: ERIC Clearinghouse on Higher Education, Feb., 1971).

⁴³H. W. Lane, "Admissions Procedures in Transition: Some Interrelations," IRCD Bulletin, 5:3, Winter, 1969 (U. S., ERIC Information Retrieval Center on the Disadvantaged).

⁴⁴R. E. Iffert and B. S. Clarke, "College Applicants, Entrants, Dropouts" (Report No. OE-54034, 1965), (Washington, D.C.: ERIC Clearinghouse on Higher Education, Feb., 1972).

financial reasons as one of the barriers to higher education.⁴⁵ In a study of disadvantaged students enrolled in two year colleges, it was found that these students typically came from a minority, were under-represented in institutions of higher education, had little economic support, and were characterized by marginal traditional academic qualifications.⁴⁶ Soares and Soares suggested that, on the basis of their comparison of advantaged and disadvantaged boys, the disadvantaged may be less realistic and more variable than advantaged about future achievement levels because of their previous inconsistent patterns of achievement and lower achievement motivation.⁴⁷ In a California study, "stopouts" (i.e., students who completed one or more terms before withdrawing, as opposed to dropouts, students who withdrew during their first semester) perceived the following area as needing improvement--increasing financial aid to a larger proportion of students who need it.⁴⁸

Academic Ability

Ikenberry studied 530 Michigan State University students who

⁴⁵R. Ferrin, "Barriers to Universal Higher Education" (Palo Alto, California, College Entrance Examination Board), (Washington, D.C.: ERIC Clearinghouse on Higher Education, March, 1970).

⁴⁶"Academically Disadvantaged Minority Group Students in Public Two Year Colleges" (Pennsylvania State Department of Education, Harrisburg, Bureau of Curriculum Development and Education, Oct., 1971), (Washington, D.C.: ERIC Clearinghouse on Junior Colleges, April, 1972).

⁴⁷A. T. Soares and L. M. Soares, "Expectancy, Achievement, and Self-Concept Correlates in Disadvantaged and Advantaged Youths" (paper presented at the American Psychological Association Annual Convention, Washington, D.C., Sept., 1971), (Washington, D.C.: ERIC Clearinghouse on Disadvantaged, Feb., 1972):

⁴⁸D. L. Kester, "California Community College Stopouts: A Comparison of Three Nor Cal-CCHE Follow-up Studies" (Office of Education, Washington, D.C., Division of Academic Facilities, Dec., 1971), (Washington, D.C.: ERIC Clearinghouse on Junior Colleges, April, 1972).

had entered the university at the same time; he compared the 250 students that remained at the end of the first year with the 330 students who dropped out during the year. He found three functions (one being achievement) differed significantly between the groups and he noted that scores on a reading test were positively related to all three functions.⁴⁹ In his study of comparisons of good and poor readers, Neville found that "predictions of success or failure among poor readers could be made with limited accuracy."⁵⁰ And in a study using a group of dean's list students and a group on academic probation, no significant differences were found between the groups on reading rate or vocabulary. However, the former group was found to be significantly superior in verbal comprehension.⁵¹ Jellison studied two groups of dropouts, those with good academic potential and those with poor academic potential. When questioned about what influenced them to dropout, the latter group mentioned "not learning how to study in high school, and poor reading ability significantly more often than the other group."⁵²

In a seven year comprehensive study, Hara and Anderson found

⁴⁹S. Ikenberry, "Factors in College Persistence," Journal of Counseling Psychology, 8:322-329, Winter, 1961.

⁵⁰D. Neville, "An Exploratory Study Comparing Successful and Unsuccessful University of Florida Students Classified as Average or Poor Readers," Dissertation Abstracts, 22:3525-3526, April, 1962.

⁵¹J. Seegers and H. Rose, "Verbal Comprehension and Academic Success in College," Personnel and Guidance Journal, 42:295-296, Nov., 1962.

⁵²B. Jellison, "Certain Differences in Two Groups of Dropouts at Ft. Hays State College with Recommendations for Reducing Attrition Among Students with Good Academic Potential," Dissertation Abstracts, 26:5867-5868, April, 1966.

that 36% of all dropouts were apparently capable of succeeding in college as indicated by CEEB scores.⁵³ Astin noted that the major predictors of persistence in college were high school grades and scores on tests of academic ability,⁵⁴ while White found that a significant factor in attrition was first semester GPA.⁵⁵ Effert and Clark's study revealed that 45% of college dropouts attributed their withdrawal to academic difficulties.⁵⁶

Special Programs

To meet the needs of marginal students and hopefully reduce attrition, universities have developed special programs. Typically, these are reading programs designed to strengthen the students academic skills. Variable results have been reported with regard to their effectiveness.

Many of the studies evaluating college reading programs use only improved reading skills as the criterion. For example, test score gains have been reported for participants in reading programs

⁵³V. S. Hardie and J. R. Anderson, "College Students: A Revealing Comprehensive Seven Year Study of 1106 University Freshmen Attrition, Graduation, and Follow-up" (Clemson University, South Carolina, Aug., 1971), (Washington, D.C.: ERIC Clearinghouse on Counseling and Personnel Services, Feb., 1972).

⁵⁴A. W. Astin, "College Dropouts: National Profile" (American Council on Education, Washington, D.C., Office of Research, Feb., 1972), (Washington, D.C.: ERIC Clearinghouse on Higher Education, June, 1972); see also R. E. Iffer, Retention and Withdrawal of College Students (Washington, D.C.: U.S. Office of Education, Government Printing Office, 1958); see also R. J. Panos and A. W. Astin, "Attrition among College Students," American Educational Research Journal, 5:57-72, Jan., 1968.

⁵⁵J. H. White, "Individual Environmental Factors Associated with Freshmen Attrition at a Multi-Campus Community College" (Washington, D.C.: ERIC Clearinghouse on Junior Colleges, July, 1972).

⁵⁶R. E. Iffert and B. S. Clarke, "College Applicants, Entrants, Dropouts" (Report No. OE-54034, 1965), (Washington, D.C.: ERIC Clearinghouse on Higher Education, Feb., 1972).

at the University of Wisconsin, Quinsigamond Junior College, University of Maryland, University of Southern Mississippi, and Fordham University.⁵⁷ There are fewer studies which utilize grade point average as the criterion of success, but extremely variable results are reported. Studies done at the University of Minnesota, Washington State University, University of Pennsylvania, and Lincoln College revealed improved grade point averages for students taking reading courses,⁵⁸ whereas Losak, Wilson, Regensberg, and Colvin reported contrary findings.⁵⁹

⁵⁷V. Bahe, "Reading Instruction and College Achievement," Reading Improvement, 6:57-61, 77, Winter, 1969; see also J. W. Brown, M. Watson, and R. Bowden, "Building Basic Skills at the Community Level: A New Approach," Journal of the Reading Specialist, 9:144-150, 158, May, 1970; See also S. D. Marani and M. Maxwell, "A Reading and Study Skills Program for Medical Laboratory Assistants," Journal of Reading, 11:615-620, May, 1968; see also R. Guice, "An Experiment Combining Instruction in Comprehension with Practice in the Cloze Procedure in Reading," Dissertation Abstracts, 28:143A, July, 1967; see also J. Cashman, "A Study of the Relationship Between Organic Factors, Certain Selected Variables and Progress in a Reading Improvement Program," Dissertation Abstracts, 27:1648A, Dec., 1966.

⁵⁸D. Hultgren and J. Crewe, "Athletic Department Reading and Study Skills Program--A Model in Search of Other Applications," Seventeenth Yearbook of the National Reading Conference (Milwaukee: National Reading Conference, 1969), pp. 61-64; see also L. Kelly and D. Mech, "The Relationship Between College Reading Laboratory Experience and Gain in College Grade Point Average," Journal of the Reading Specialist, 7:50-54, Dec., 1967; see also M. Lesnik, "The Effects of an Individual Counseling Program on Study Behavior," Dissertation Abstracts, 30:2725A, Jan., 1970; see also L. Wade, "A Description of a Junior College Reading Program," Seventeenth Yearbook of the National Reading Conference (Milwaukee: National Reading Conference, 1969), pp. 212-224.

⁵⁹J. Losak, "An Experiment Designed to Evaluate a Program Developed to Aid the Academically Unprepared Junior College Student," Dissertation Abstracts, 30:5256A, June, 1970; see also R. Wilson, "The Influence of the Effective Study Course at the University of Mississippi Upon Academic Achievement," Dissertation Abstracts, 29:1058A-1059A, Oct., 1968; see also G. Regensburg, "Relationship Between Participation in a Reading Improvement Course and Grade Point Averages of College Freshmen," Dissertation Abstracts, 27:1559A, Dec., 1966; see also C. Clovin, "A Reading Program that Failed--Or Did It?" Journal of Reading, 12:142-146, Nov., 1968.

Thompson showed that a reading course might not enhance reading ability but that students taking such a course would be less likely than their counterparts, who received no guidance, to fail courses.⁶⁰ Kilby's 1945 study revealed that the amount of benefit from college remedial reading programs showed no relationship to a student's reading ability at the start of the program, scholastic aptitude, high school achievement, or predicted grade and that the remedial reading training resulted in greater improvement in verbal courses than in quantitative courses.⁶¹ O'Bear studied the changes in the academic achievement of matched groups of remedial reading and non-remedial reading students at Indiana University. His investigation revealed that the remedial course students achieved poorer grades than the non-remedial course students in all areas and that the highest grades earned by the remedial course students were during the semester they were enrolled in the reading course.⁶² Studies completed by McDonald, and Schoenbeck, and Sawyer revealed college reading programs increased student grades and reduced the number of dropouts.⁶³

⁶⁰W. Thompson, "Experiment in Remedial Reading," School and Society, 34:156-158, Feb., 1931.

⁶¹R. Kilby, "Relation of a Remedial Reading Program to Scholastic Success in College," Journal of Educational Psychology, 36:513-534, Dec., 1945.

⁶²H. H. O'Bear, "Changes in the Academic Achievement of Matched Groups of Remedial Reading and Non-remedial Reading Students at Indiana University," Dissertation Abstracts, 15:357, no. 3, 1955.

⁶³A. S. McDonald, "Influence of a College Reading Improvement Program on Academic Performance," Journal of Educational Psychology, 48:171-181, March, 1957; see also P. Schoenbeck, "Counseling and Reading Skills for the Terminal Student" (paper presented at the National Reading Conference, Dec., 1966, St. Petersburg, Florida), (Washington, D.C.: ERIC Clearinghouse on Reading, Aug., 1967); see also R. N. Sawyer, "The Effect of Specialized Developmental Reading and Study Skills Instruction and Counseling on a Sample of Students with Above Average Quantitative and Below Average Verbal Skills" (Washington, D.C.: ERIC Clearinghouse on Reading, Dec., 1969).

Studying the effects of a reading/study skills improvement course and reduced credit load on achievement and persistence of failure prone college freshmen, Ikenberry found that students who took the reading course and simultaneously had a reduced credit load profited more than other students, i.e., they had higher GPA's and a lower withdrawal rate.⁶⁴ However, Scheller's investigation indicated that while reading programs may improve reading skills, it does not necessarily follow that grades will be improved.⁶⁵

Other types of programs have been tried with variable success. At the end of one program designed to change study habits and attitudes of high risk minority students, the students reported more negatively on their study habits and attitudes than at the beginning of the program.⁶⁶ Wright found that students predicted lowest in achievement appeared to profit least from tutoring or did not take advantage of it;⁶⁷

⁶⁴S. Ikenberry, "Effects of Reading, Study Skills Improvement, and Reduced Credit Load on Achievement and Persistence of Failure Prone College Freshmen: A Pilot Study" (Office of Education, Washington, D.C., Bureau of Research, Nov., 1966), (Washington, D.C.: ERIC Clearinghouse on Reading, Feb., 1969).

⁶⁵T. G. Scheller, "The Effects on Academic Grades of Enrollment in a Reading Course," *General College Studies*, v.3, no. 3, 1966-67, cited in Research in Education, 3:99, Sept., 1968.

⁶⁶A. M. Lahn, "Changes in Study Habits and Attitudes During a College Preparatory Program for High Risk Students" (paper presented at the American Personnel and Guidance Association National Convention, Atlantic City, N.J., 1971), (Washington, D.C.: ERIC Clearinghouse on Disadvantaged, Oct., 1972).

⁶⁷R. M. Wright, "The Effects of Organized Tutoring and Advising by Upperclassmen with 'Predicted Unsuccessful' Freshmen. Final Report." (Northeast Missouri State College, Kirksville, Missouri, July, 1971), (Washington, D.C.: ERIC Clearinghouse on Higher Education, June, 1972).

while Biskin noted that substantial gains were made in academic achievement by students in projects initiated by the Center for Urban Affairs and Equal Opportunity Programs.⁶⁸ Thus, diversified results and conclusions drawn from studies concerned with college programs suggest that many variables must be taken into account in order to determine the effectiveness of the programs, e.g., methods used,⁶⁹ mechanical devices,⁷⁰ materials used,⁷¹ and permanence of gains.⁷²

⁶⁸D. S. Biskin, "Analysis of the 1969-1970 Academic Tutorial Program at Michigan State University" (Michigan State University, East Lansing, Center for Urban Affairs, March, 1971), (Washington, D. C.: ERIC Clearinghouse on Higher Education, Feb., 1972).

⁶⁹F. S. Foreman, "Study of Self-Reinforcement and Study Skills Program with Bright College Underachievers," Dissertation Abstracts, 30:1430A, Oct., 1969; see also M. R. Thompson and R. P. Whitehill, "Relationships between Reading Flexibility and Speed Gains," Journal of Educational Research, 63:211-215, Feb., 1970.

⁷⁰R. L. Dubois, "Improvement of Textbook Comprehension in College Reading Classes," Journal of Reading, 13:113-118, 165-166, Nov., 1969.

⁷¹W. C. Hampton, "Multi-level and Mono-level Approaches to Study Skills with College Freshmen," Dissertation Abstracts, 30:1361, Oct., 1969; see also J. R. Dornish, "A Study of the Effectiveness of ITV as a Supplement to face-to-face Reaching of Functional Illiterates," Dissertation Abstracts, 30:5221A, June, 1970.

⁷²L. J. Yuthas, "A Study of Two Approaches to the Teaching of Remedial Reading to Low-Achievers at an Urban College," Dissertation Abstracts, 30:2272A, Dec., 1969; see also B. E. Roberts, "Differing Practice Schedules for College Developmental Reading Classes," Dissertation Abstracts, 30:3333A, Feb., 1970.

READING, ACHIEVEMENT, APTITUDE
AND THE PREDICTIONS OF COLLEGE
SUCCESS, FAILURE, ATTRITION

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